

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-2, 6, 11, 19, 22 and 24-28 are presently active in this case. The present Amendment amends Claims 1 and 19 and adds new Claims 25-28 without introducing any new matter.

The outstanding Office Action objected to the specification because of informalities. Claims 1-2, 6, 11, 19, 22 and 24 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

In response to the objections to the specification, the specification is amended so that appropriate section headings have been added according to 37 C.F.R. §1.77(b).

In response to the rejection under 35 U.S.C. §112, first paragraph, Applicant traverses the rejection since the added features are supported by the Figures 1-2 of Applicant's disclosure. However, in the spirit of moving the prosecution of the Application forward, Claims 1 and 19 are amended to delete the features regarding the disposing and the detecting. In view of amended Claims 1 and 19, it is believed that no further rejection on that basis is anticipated.

To clarify Applicant's invention, Claim 1 and 19 are amended. Independent Claim 1 is amended to recite "to detect breakage of at least one filament before breakage of the yarn."¹ Independent Claim 19 is amended to recite "before breakage of the yarn"² Since these features find non-limiting support in the Specification as originally filed, they are not believed to raise any question on new matter.

¹ Finds non-limiting support in Applicant's Specification at page 9, lines 24-26.

² Idem at page 9, lines 24-26..

To vary the scope of protection recited in the claims, new Claims 25-28 are added. New Claim 25 depends upon Claim 1 and recites "the position of the wheel includes an angular displacement of a rotating axis of the wheel."³ New Claims 26 and 28 depend upon Claims 1 and 19, respectively and recite "disposing the wheel to rotate and to pivot relative to an end of a shaft."⁴ New Claim 27 depends upon Claim 19 and recites "the movement of the wheel includes an angular displacement of a rotating axis of the wheel."⁵ Since the new claims find non-limiting support in the disclosure as originally filed, they are not believed to raise a question of new matter.⁶

In response to the rejection of Applicant's claims made in previous Office Actions over Minkler (U.S. Patent No. 3,560,178) or Carroll et al. (U.S. Patent No. 4,036,622, herein "Carroll"), Applicant respectfully requests reconsideration of these rejections and traverses these rejections, as discussed next.

Briefly recapitulating, Applicant's invention, as recited in Claim 1, relates to a process for manufacturing a continuous yarn including the steps of: drawing a multiplicity of streams of molten material to form a multiplicity of continuous filaments; gathering the multiplicity of the filaments into the yarn with a wheel; and monitoring a position of the wheel to determine whether a tension exerted by the multiplicity of the filaments falls below a predetermined tension to detect breakage of at least one filament before breakage of the yarn.

Claim 19 recites similar features in the context of a method determining a breakage of at least one filament of a yarn.

As explained in the Specification from page 5, line 23 to page 6, line 27, Applicant's Claim 1 improves upon background processes for manufacturing continuous yarns, since it

³ Idem at page 9, lines 11-15 and line 19 and in corresponding Figures 1-2.

⁴ Idem from page 8, line 29 to page 9, line 5.

⁵ Idem at page 9, lines 11-15 and line 19 and in corresponding Figures 1-2.

⁶ See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

detects the breakage of the first filaments of the yarn as soon as possible and subsequently can take measures to avoid different problems in the manufacturing process. A first problem that may arise is due to the lubricants covering the filaments. The filaments are covered with a lubricant that is very sticky. Therefore, a broken filament of the entire yarn can stick to anything that it gets in contact with, since it may not be guided through the manufacturing process anymore. Subsequently, the wheel and any other rotating or moving mechanical part of the process could be damaged or other filaments could tear. Another problem that may arise is due to the melting of the broken filaments. Torn filaments may melt and drops of glass or thermoplastic can drop onto the manufacturing equipment and cause fire. It is also possible that the drops damage the manufacturing equipment by covering surfaces of rotation wheels.

Turning now to the applied references, Minkler discloses an apparatus for producing fiber glass where filaments are gathered into a strand, where upon *break-out of the strand*, a switch is opened and the electric circuit which supplies current to the winder motor is interrupted.⁷ However, Minkler fails to teach or suggest Applicant's claimed monitoring of a position of the wheel to determine whether a tension exerted by the multiplicity of the filaments falls below a predetermined tension, also fails to teach or suggest that a breakage of at least one filament is detected before breakage of the yarn. First, Minkler clearly teaches that "upon breakage of the fibers and when no fibers contact the shoe 16, the counterweight 62 causes the arm 38 to pivot to its FIG. 3 position."⁸ Accordingly, Minkler does not teach a step of monitoring a position of the wheel whether a tension exerted by filaments falls below a predetermined value. The shoe 16 merely displaces itself laterally after Minkler's strand is entirely torn. Accordingly, when Minkler's shoe 16 displaces itself, there is no tension at all caused by the strand. Second, Minkler discloses that upon break-out of the strand, a mercury

⁷ See Minkler at column 1, lines 50-56 and in corresponding Figure 2.

⁸ See Minkler at column 2, lines 66-69 and in corresponding Figures 2 and 3.

switch is opened.⁹ Therefore Minkler fails to teach or suggest the detecting of breakage of at least one filament before breakage of the yarn, as claimed by Applicant. As discloses in several positions throughout the reference Minkler and also shown in Figures 2-3, Minkler detects if the strand is entirely torn. Otherwise, Minkler's shoe 16 cannot displace itself. Minkler even teaches that the electrical circuit for driving the shoe can only be closed "only when the strand contacts the shoe."¹⁰ Accordingly, Minkler teaches away from Applicant's invention.

Further, Carroll also does not teach or suggest the features of Applicant's independent Claims 1 and 19, as mentioned above. Carroll teaches that on absence of the strand, as determined by *loss of contact of the strand* with the detecting means, a circuit means stops rotation of the collet.¹¹ If a position of a wheel is monitored to determine a tension, as claimed by Applicant, Carroll's strand would have to contact the detecting means, which is not the case. Accordingly, Carroll neither teaches Applicant's claimed monitoring a position of the wheel to determine whether a tension exerted by the multiplicity of the filaments falls below a predetermined tension, also fails to teach or suggest that a breakage of at least one filament is detected before breakage of the yarn.

Therefore, the applied references fail to teach or suggest every feature recited in Applicant's independent claims, so that Claims 1-2, 6, 11, 19, 22 and 24-28 are patentably distinct over the applied references. Accordingly, Applicant respectfully traverses, and requests reconsideration of, the rejection based on Minkler or Carroll.¹²

Further, Applicant's respectfully submit that neither Minkler nor Carroll teaches all the features of Applicant's dependent claims. Specifically, dependent Claims 25 and 27

⁹ See Minkler in the Abstract.

¹⁰ See Minkler at column 1, lines 63-69.

¹¹ See Carroll in the Abstract, at column 1, lines 37-41 and in Figures 2 and 5.

¹² See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

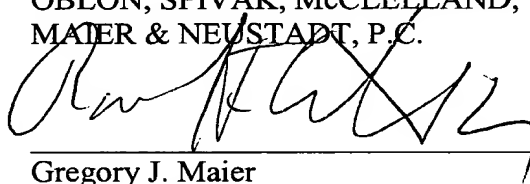
recite that the position of a wheel or the movement of a wheel includes an angular displacement of a rotating axis of the wheel. However, in both Minkler and Carroll, the displacement of the Minkler's shoe 16 is a simple lateral translation of the rotational axis¹³ and Carroll's pivot bar 20 causes the rotational axis of the measurement wheel to move without angular change of the rotational axis.¹⁴

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-2, 6, 11, 19, 22 and 24-28 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

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¹³ See Minkler in Figures 2 and 3.

¹⁴ See Carroll in Figures 2 and 5.